

CLAIMS

What is claimed is:

- 1 1. A method for inspecting a substrate, the method comprising:
2 inserting the substrate into a holding place of a substrate holder;
3 moving the substrate holder under an electron beam; and
4 applying a voltage to a conductive element of the substrate holder,
5 wherein the voltage applied to the conductive element reduces a substrate
6 edge effect.
- 7 2. The method of claim 1, wherein the voltage applied to the conductive
8 element depends upon a gap size between an edge of the substrate and an edge of
9 the holding place.
- 10 3. The method of claim 2, further comprising:
11 determining the gap size as the substrate holder moves under the electron
12 beam.
- 13 4. The method of claim 1, further comprising:
14 setting the substrate into a predetermined position within the holding place.
- 15 5. The method of claim 4, wherein the voltage applied to the conductive
16 element depends on which portion of the substrate holder is currently under the
17 electron beam.
- 18 6. The method of claim 1, further comprising:
19 performing a calibration run to determine a voltage function to apply to reduce
20 the substrate edge effect.
- 21 7. The method of claim 1, wherein the moving is continuous.
- 22 8. The method of claim 7, further comprising:
23 detecting scattered electrons using a time-delayed integrating detector.
- 24 9. An apparatus for holding a substrate that reduces a substrate edge
25 effect, the apparatus comprising:

26 a holding place for insertion of the substrate; and
27 a conductive element positioned so as to be located within a gap between an
28 edge of the holding place and an edge of the substrate.

29 10. The apparatus of claim 9, wherein the conductive element is
30 electrically isolated from the substrate.

31 11. The apparatus of claim 11, further comprising:
32 at least one insulating element supporting the conductive element.

33 12. The apparatus of claim 11, further comprising:
34 a power supply and conductive mechanism for applying a voltage to the
35 conductive element.

36 13. The apparatus of claim 12, wherein the voltage applied is variable and
37 dependent on a size of the gap.

38 14. The apparatus of claim 9, wherein the apparatus comprises a wafer
39 holder, and wherein the substrate comprises a semiconductor wafer.

40 15. The apparatus of claim 14, wherein the conductive element comprises
41 a ring.

42 16. The apparatus of claim 15, further comprising:
43 at least one insulating element supporting the ring.

44 17. The apparatus of claim 16, further comprising:
45 a variable power supply and conductive mechanism for applying a voltage to
46 the ring.

47 18. A system for inspecting semiconductor wafers, the system comprising:
48 a mechanism for moving a wafer holder under an electron beam; and
49 means for reducing a wafer edge effect,
50 wherein the wafer edge effect depends upon a size of a gap between an edge
51 of the wafer and an edge of the wafer holder.

52 19. The system of claim 18, wherein the means for reducing the wafer
53 edge effect comprises:

54 a conductive element of the wafer holder to which a variable voltage is
55 applied.

56 20. The system of claim 19, wherein the conductive element is located
57 between the edge of the wafer and the edge of the wafer holder.

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